KUZNETSOV, K.N., inzh. (Omsk); KHACHEVSKIY, B.I., inzh.(Omsk); KHLOMENOK, N.D. (Omsk)

What experience has shown in the adoption of electric traction on the Omsk railroad. Zhel. dor. transp. 40 no.5:66-72 My '58. (MIRA 11:6)

1.Glavnyy inzhener sluzhby dvizheniya Omskoy dorogi (for Kuznetsov).
2.Nachal'nik sluzhby dvizheniya Omskoy dorogi (for Khachevskiy).
3.Zamestitel' nachal'nika planovo-ekonomicheskogo otdela Omskoy dorogi (for Khlomenok).
(Electric railroads--Management)

KUZNETSOV, K.N.

Train traffic in the section during track work. Put' i put. khoz. 4 no. 12:14-16 D '60. (MIRA 13:12)

1. Glavnyy inzhener sluzhby dvizheniya, g.Omsk.
(Railroads--Maintenance and repair)
(Railroads--Traffic)

KUZNETSOV, K.N. (g.Omsk)

Lengthening of haul distances contributes to an increase in traffic speeds. Zhel.dor.transp. 42 no.9:86-89 S '60.
(MIRA 13:9)

1. Glavnyy inzhener sluzhby dvizheniya i passazhirskoy raboty Omskoy dorogi.

(Railroads--Traffic)

KUZNETSOV, K.P., kand.tekhn.nauk, dotsent

Capacity of the bobbin holder of beam warping machines. Tekst.prom. 25 no.1:43-46 Ja '65. (MIRA 18:,)

1. Moskovskiy tekstil'nyy institut.

KUZNETSOV, K.P., dotsent

Instrument for measuring warp tension on looms. Tekst. prom. 25 no.3:33-35 Mr '65. (MIRA 18:5)

1. Kafedra tkachestva Moskovskogo tekstil'nogo instituta.

AUTHOR: Kuznetsov, K.P., Engineer SOV/117-58-11-30/36

TITLE: An Individual Exhaust Fan (Individual'naya vytyazhnaya ventilyatsiya)

PERIODICAL: Mashinostroitel', 1958, Nr 11, p 42 (USSR)

ABSTRACT: On a machine for the sharpening of files, an exhaust fan has been installed, which is switched on and off with the motor of the machine. A diagram of the machine is given. There is 1 diagram.

1. Blowers--Applications 2. Blowers--Control

Card 1/1

KUZNETSOV, K.P.

Manufacture of small barrels on continuous production lines.
Der.prom. 10 no.3:28 Mr '61. (MIRA 14:5)
(Coppers and copperage)
(Assembly-line methods)

KULIGIN, Aleksandr Vasil'yevich; KANUNNIKOV, I.V., retsenzent;
KUZNETSOV, K.P., retsenzent; SOKOLOVA, V.Ye., red.;
TRISHINA, L.A., tekhn. red.

[Automatic AT-100-5M and AT-120-5 looms]Avtomaticheskie tkatskie AT-100-5M i AT-120-5. Moskva, Rostekhizdat, 1962. 231 p.
(MIRA 15:10)

(Looms) (Automatic control)

KUZNETSOV, K. P.

PA 159T1

USSR/Biology - Insects
Insecticides

May 50

"Effectiveness of Using Some Chemical Preparations in the Control of Insects of the Pentatomidae Family," K. P. Kuznetsov, Cand Agr Sci, Slavyansk Base, All-Union Sci Res Inst for Plant Protection, 6 pp

"Dok v-s Ak Selkhoz Nauk" No 5

Tests toxic effects of various preparations on pentatomidae in laboratory conditions and DDT and hexachlorocyclohexane dusts in field conditions. Laboratory tests show high toxicity of all preparations tested, and field tests show the two preparations to have a slow-acting effect and to be more

159T1

USSR/Biology - Insects (Contd)

May 50

effective when dusted on insects' plant food than on insects themselves, except in early larva stages. Includes eight tables of data.

159T1

SOKHONIN, M.Ye.;KUZMITSOV, K.P.

Gunshot wounds of the heart and of the small and large intestines.
Khirurgiia no.8:76 Ag. '55. (MIRA 9:2)

1. Iz Dmitriyevskoy rayonnoy bol'nitsy Kurskoy oblasti.
(HEART--WOUNDS AND INJURIES)
(INTESTINES--WOUNDS AND INJURIES)

PAYKIN, D.M.; STAROSTIN, S.G.; MENDE, P.F.; KUZNETSOV, K.P.; POPOVA, M.I.; PESHKOV, V.G.

Mist spraying of chlorophos against the shield bug Eurygaster integriceps. Zashch. rast. ot vred. i bol. 7 no.2:20-21 F '62. (MIRA 15:12)

(Chlorophos) (Eurygasters)
(Spraying and dusting)

BARANOV, B.M., inzh.; KUZNETSOV, K.S., inzh.; MIRER, G.V., inzh.; PEREPELITSKIY, S.G.

Concerning the loads on the electric network caused by housing construction work in Moscow. Elek. sta. 32 no. 5:57-62 My '61. (MIRA 14:5)

(Moscow—Electric power distribution)

BELIKOV, V.A.; BESSMERTNYY, I.S.; GLAZUNOV, A.A.; IOKHVIDOV, E.S.; KOZLOV, V.A.; KUZNETSOV, K.S.; MIRER, G.V.; SOLDATKINA, L.A.; FEDOSENKO, R.Ya.

"Fundamental problems concerning the design of municipal electric power distribution networks" by B.L. Aizenberg and S.N. Nikogosov. Reviewed by V.A. Belikov and others. Elektrichestvo no.7:93-94 Jl '62. (MIRA 15:7)

1. Moskovskiy inzhenerno-ekonomicheskiy institut imeni S. Ordzhonikidze (for Belikov). 2. Giprokommunenergo (for Bessmertnyy). 3. Moskovskiy energeticheskiy institut (for Glazunov, Soldatkina). 4. Moskovskoye rayonnoye upravleniye energeticheskogo khozyaystva (for Iokhvidov). 5. Leningradskaya kabel'naya set' Leningradskogo upravleniya energokhozyaystvom Glavenergo Ministerstva elektrostantsiy SSSR (for Kozlov). 6. Mosinzhproyekt (for Kuznetsov). 7. Upravleniye po proyektirovaniyu zhilishchno-grazhdanskogo i kommunal'nogo stroitel'stva g. Moskvy (for Mirer). 8. Akademiya kommunal'nogo khozyaystva im. K.D. Pamfilova (for Fedosenko).

(Electric power distribution)
(Aizenberg, B.L.) (Nikogosov, S.N.)

KUZHETSOV, K.V., otv. za vypusk; PECHERSKAYA, T.I., tekhn.red.

[Traffic regulations for vehicles and pedestrians on city and community streets and roads of Irkutsk Province] Pravila dvizheniia transporta i peshekhodov po ulitsam gorodov, naselennykh punktov i dorogam Irkutskoi oblasti. Irkutsk, Irkutskoe knizhnoe izd-vo, 1959. 73 p. (MIRA 13:2)

1. Irkutsk. Oblastnoy ispol'nitel'nyy komitet.
(Irkutsk Province—Traffic regulations)

KUZNETSOV, L.

Regularize forest preservation and exploition. Fin. SSSR 22. no.4:45-46 Ap '61. (MIRA 14:4)

1. Zaveduyushchiy Taysheteskim rayfinotdelom Irkutskoy oblasti.
(Tayshet District—Forest and forestry)

KUZNETSOV, L., inzhener.

Improve the quality of equipment put out by plants of the Main Administration of Machine Manufacture for the Food Industry. Muk.-elev. prom. 23 no.4:27 Ap '57. (MLRA 10:5)

1. Bobruyskaya mel'nitsa No. 17.
(Grain milling machinery)

KREYMERMAN, G., kand.tekhn.nauk; INGERMAN. M., inzh.; KUZNETSOV, L.; SHONYA, M.; NEMODRUK, I.

The DMK-1 corn threshing machine with two stages. Muk.-elev. prom. 28 no.6:6-9 Je '62. (MIRA 15:7)

1. Mirgorodskaya mashinoispytatel'naya stantsiya (for Shonya, Nemodruk). 2. Vsesoyuznyy zaochnyy institut pishchevoy promyshlennosti (for Kreymerman). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut zerna i produktov yego pererabotki (for Ingerman).
(Threshing machines) (Corn (Maize))

KUZNETSOV, L.

Responsible for the life of a person. Zhil.-kom. khoz. 13 no.4:30-31 Ap '63. (MIRA 16:5)

1. Zamestitel' nachal'nika Gosudarstvennogo avtomobil'noy inspektsii Glavnogo upravleniya militsii Ministerstva okhrany obshchestvennogo poryadka RSFSR.

(Traffic engineering)

RZHEKHIN, Yu.; KUZNETSOV, L.; SOKOLOV, A.

Traffic engineering and safety. Avt.transp. 42 no.3 48-52 Mr '64. (MIRA 17:4)

1. Zamestitel' nachal'nika Gosudarstvennoy avtomobil'noy inspektsii Glavnogo upravleniya militsii Ministerstva okhrany obshchestvennogo poryadka RSFSR (for Kuznetsov).

KUZNETSOV, L.

Traffic organization and safety. Avt. transp. 42 no.10:48-49 O '64. (MIRA 17:11)

1. Zamestitel' nachal'nika Gosudarstvennoy avtomobil'noy inspektsii Glavnogo upravleniya militsii Ministerstva okhrany obshchestvennogo poryadka RSFSR.

KLINKOVSHTEYN, G., kand.tekhn.nauk; [illegible], L.; [illegible]

Traffic organization and safety. Avt.transp. 42 no.12:44-48 D '64. (MIRA 18:4)

1. Zamestitel' nachal'nika Gosudarstvennoy avtomobil'noy inspektsii Glavnogo upravleniya militsii Ministerstva okhrany obshchestvennogo poryadka RSFSR (for Kuznetsov).

KUZNETSOV, L.A. (Moskva)

Method of forecasting fields of humidity, cloudiness, and precipitation. Meteor.i gidrol. no.12:9-15 D '62. (MIRA 15:12)

(Weather forecasting)

PROSKURIN, V.V., dotsent; KUZNETSOV, L.A., inzh.; ANDRIANOV, A.P., inzh.; GUSEV, I.P., inzh.

Industrial testing of shield ceilings made of logs. Izv.vys. ucheb.zav.; gor.zhur. no.6:3-8 '59. (MIRA 13:4)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M.Kirova. Rekomendovana kafedroy razrabotki plastovykh mestorozhdeniy.
(Mine timbering)

ANDRIANOV, A.P., starshiy prepodavatel'; GUSEV, I.P., dotsent; KUZNETSOV, L.A., starshiy prepodavatel'; PROSKURIN, V.V., dotsent; FEDOROV, N.A., starshiy prepodavatel'

Clay breakthroughs in mining. Izv.vys.ucheb.zav.; gor.zhur. no.3:15-18 '61. (MIRA 15:4)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M.Kirova; rekomendovana kafedroy razrabotki plastovykh mestorozhdeniy Tomskogo politekhnicheskogo instituta. (Prokop'yevsk region—Coal mines and mining) (Clay)

KUZNETSOV, L.A.

Biology of swallows. Priroda 46 no.6:127 Je '57. (MLRA 10:7)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Swallows)

KUZNETSOV, L.A.

Differential methods of exercise therapy in diseases of the lumbosacral part of the peripheral nervous system. Vop.kur. fizioter. i lech. fiz. kul't no.3:29-33 Jl-S '55. (MLRA 8:8)

1. Iz bal'neologicheskogo nauchno-issledovatel'skogo instituta imeni I.V. Stalina na kurorte Sochi--Matsesta (dir.--dotsent N.P. Vladimirov)

(NERVES, PERIPHERAL, diseases
lumbosacral phys. exercise ther. differ. method)
(EXERCISE THERAPY, in various diseases
differ. method in dis. of lumbosacral peripheral nerves)

KUZNETSOV, L.A.

DEDERER, Yu.M.; KUZNETSOV, L.A.

Bilateral spontaneous pneumothorax in foreign bodies of the trachea and bronchi. Vest.oto-rin 17 no.4:42-44 Jl-Ag '55. (MLRA8:10)

1. Iz Barnaul'skoy gorodskoy bol'nitsy.

(TRACHEA, foreign bodies,
causing pneumothorax, bilateral)
(BRONCHI, foreign bodies,
causing pneumothorax, bilateral)
(FOREIGN BODIES,
bronchi & trachea, causing bilateral pneumothorax)
(PNEUMOTHORAX, etiology and pathogenesis,
for. bodies of bronchi & trachea bilateral pneumothorax)

KUZNETSOV, L. A.

Ecology and biology of Anabasis salsa (C.A.M.)Benth.s.l. Biul. SNO LGU no.1:51-58 '58. (MIRA 13:6)
(Anabasis (Botany))

KUZNETSOV, L.A.

Geobotanical characteristics of Anabaseta salsae communities. Uch. zap. Ped. inst. Gerts. 178:119-144 '59. (MIRA 14:7)
(Anabasis (Botany)) (Pastures and meadows)

L 27934-66 EWP(f)/EPF(n)-2/T-2/ETC(m)-6 WW

ACC NR: AP6017727 SOURCE CODE: UR/0114/65/000/005/0001/0004

AUTHOR: Kuznetsov, I. A. (Doctor of technical sciences); Bogoradovskiy, G. I. (Engineer); Krinskiy, A. A. (Engineer); Kuznetsov, A. L. (Candidate of technical sciences); Mal'tsurov, I. I. (Engineer)

ORG: none

TITLE: Basic results of tests on an experimental-industrial sample of the GT-750-6 gas turbine unit of NZL

SOURCE: Energomashinostroyeniye, no. 5, 1965, 1-4

TOPIC TAGS: gas turbine, industrial blower, gas flow/GT-750-6 gas turbine, 370-12-1 industrial blower

ABSTRACT: This paper describes tests on the GT-750-6 gas turbine unit designed and built in 1963-1964 at NZL (Nevskiy Machine-Building factory) and intended to drive a 370-12-1 centrifugal blower at the pumping stations of gas mains.

Some of the constants of the gas turbine are: Temperature of the gas ahead of the high pressure turbine 750° C; power at the blower coupling 6000 kw; fuel consumption 1.93 tons/hr; rpm of main shaft 5,600; degree of regeneration 0.70; efficiency of the unit 27.0%; gas flow through the turbine 190 tons/hour. The paper gives curves of temperatures, pressures, efficiencies and outputs for various operating conditions. Orig. art. has: 6 figures and 7 formulas. [JPRS]

SUB CODE: 13, 20 / SUBM DATE: none / ORIG REF: 002

Card 1/1 BLC UDC: 621.438.001.45

PAVLIKOVSKAYA, N.B.; KUZNETSOV, L.A.; NEKHAYEV, V.L.

Changes in the external respiration under the effect of physical loads of various intensity in patients with heart defects of rheumatic etiology. Vop.kur., fizioter. i lech. fiz. kul't 30 no.5:444-447 S-O '65. (MIRA 18:12)

1. Otdeleniye lechebnoy fizicheskoy kul'tury (zav. - kand.med. nauk L.A.Kuznetsov) i otdeleniye funktsional'noy diagnostiki (zav. N.B.Pavlikovskaya) Sochinskogo instituta kurortologii i fizioterapii (dir. N.Ye.Romanov).

KUZNETSOV, L.A., kand. med. nauk

Review of V.N. Moshkov's book "General fundamentals of exercise therapy." Vop. kur., fizioter. i lech. fiz. kul't. 29 no.1:83-84 '64. (MIRA 17:9)

1. Zaveduyushchiy otdeleniyem lechebnoy fizicheskoy kul'tury Sochinskogo instituta kurortologii i fizioterapii.

KUZNETSOV, L.A.

Automatic operation of a compressor plant. Der. prom. 12 no.5:25-26 My '63. (MIRA 16:7)

(Compressors) (Automatic control)

KUZNETSOV, L.A., inzh.

Silicate products for rural construction. Stroi.mat. 9 no.9: 18-19 S '63. (MIRA 16:10)

KUZNETSOV, L.A.

Device for reversing the circulation of air in drying chambers. Der. prom. 12 no.8:26-27 Ag '63. (MIRA 16:11)

1. Fabrika klavishnykh instrumentov "Zarya."

PA 37/49T21

KUZNETSOV, L. A.

Jul/Aug 48

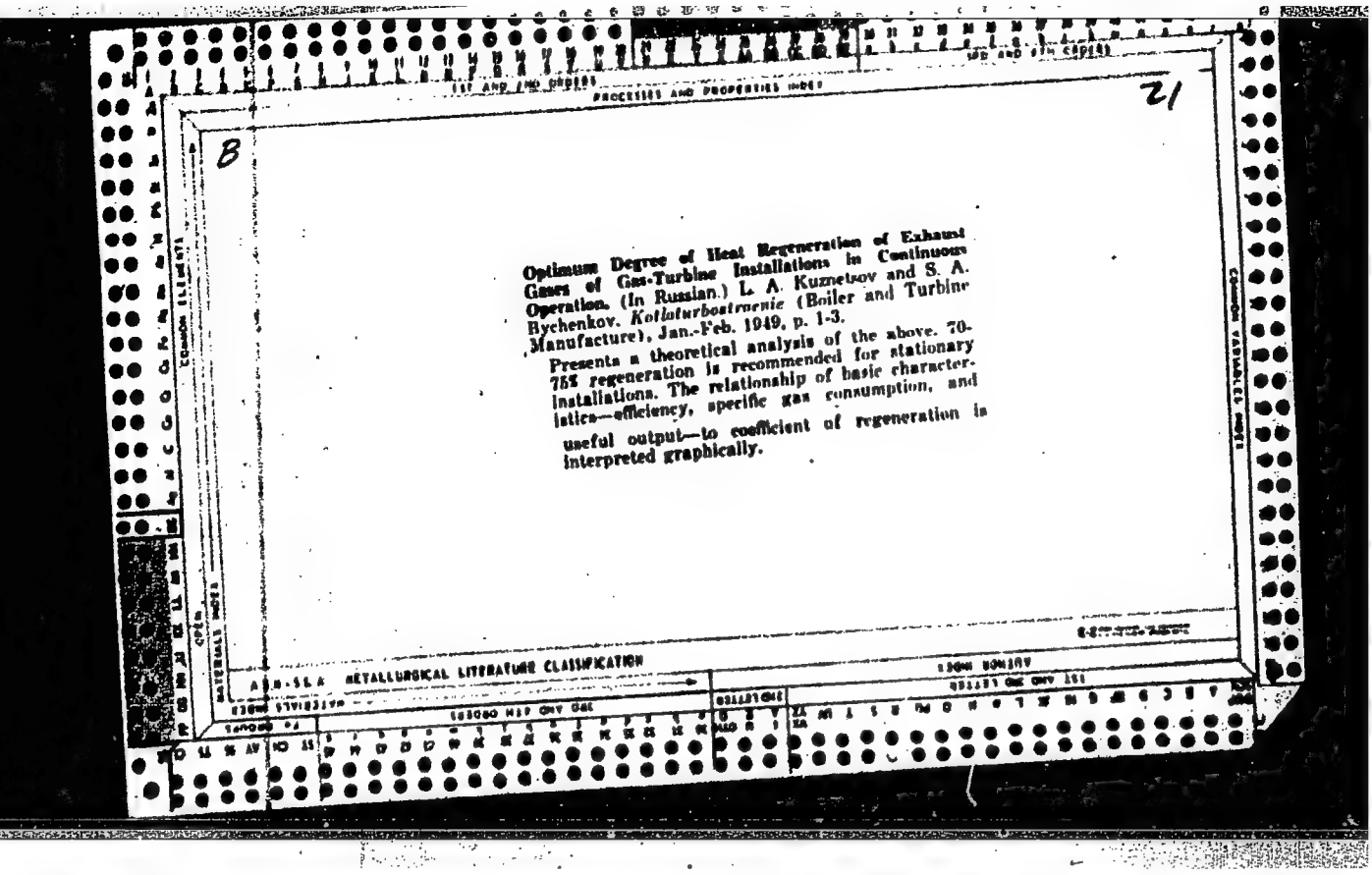
USSR/Engineering
Turbines, Gas
Combustion Chambers

"Testing the Combustion Chambers of Gas Turbines," L. A. Kuznetsov, Cand Tech Sci, 4 p

"Kotloturbostroy" No 4

Describes tests carried out at Nevskiy Factory imeni Lenin on models of gas-turbine combustion chambers, using liquid fuel.

37/49T21



B

21

Optimum Degree of Heat Regeneration of Exhaust Gases of Gas-Turbine Installations in Continuous Operation. (In Russian.) L. A. Kuznetsov and S. A. Rychenkov. *Kotloturbostroenie* (Boiler and Turbine Manufacture), Jan.-Feb. 1949, p. 1-3.

Presents a theoretical analysis of the above. 70-75% regeneration is recommended for stationary installations. The relationship of basic characteristics—efficiency, specific gas consumption, and useful output—to coefficient of regeneration is interpreted graphically.

KUZNETSOV, L. A.

KUZNETSOV, L. A. The construction and design of pipe lines in thermo-electric power plants. Moskva, Gos. nauch.-tekhn. izd-vo mashino-stroit. lit-ry, 1949. 249 p. (50-19372)

TK1041.K3

KUZNETSOV, L.A.

BYCHENKOV, S.A., inzhener; ZAL'F, G.A., inzhener.; ZVYAGINTSEV, V.V., inzhener; KUZNETSOV, L.A., kandidat tekhnicheskikh nauk.

Investigation of blading of turbines developed by the Nevskiy (Lenin) Machinery Manufacturing Plant. Energomashinostroenie no.10:1-8 O'56. (MLRA 10:1)

(Turbines--Blades)

8(6), 14(6) SOV/112-59-4-6591

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 29 (USSR)

AUTHOR: Bychenkov, S. A., Kunnetsov, L. A., and Semichev, V. G.

TITLE: Stationary NZL Gas Turbines

PERIODICAL: V sb.: Ispol'zovaniye gaza v teplosilovykh ustanovkakh. M.-L., Gosenergoizdat, 1957, pp 114-121

ABSTRACT: Neva Machine-Building Plant imeni Lenin builds 1.5-6-Mw gas-turbine units. All units built by this plant have the simplest scheme with a developed regeneration and a turbine-entrance temperature of 600°C. The first GT-600-1.5 industrial unit (600°C, 1.5 Mw) operates on various grades of heavy liquid fuel. The PG-50000 gas-turbine-compressor (reference capacity 2.5 Mw) is intended for operation on a low-calorie gas from underground gasification. Its axial extraction-type compressor ensures delivering 50,000 m^3/hr of air into the drill-hole at 2.8-atm. The GT-600-6 unit operates on blast-furnace gas with Q_p^H = 630 kcal/kg and drives a 6-Mw

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Stationary NZL Gas Turbines

generator. Use of a double housing and runner air cooling permitted considerable savings on austenite steel without any appreciable reduction of efficiency or reliability of the machine. A GT-700-4 unit (700°C, 4 Mw) has been developed for gas-pumping stations; its scheme is similar to that of GT-600-1.5, but it has, in addition, a superimposed turbine. New blading in its gas-flow path ensures a high efficiency.

V.S.P.

KUZNETSOV, Leonid Andreyevich; LANDA Ya.A., inzhener, redaktor; GOFMAN, Ye.K., redaktor izdatel'stva; STAROZHUK, Ya.P., kandidat tekhnicheskikh nauk, retsenzent; SYCHEVA, O.V., tekhnicheskiy redaktor.

[Combustion chambers of stationary gas turbines] Kamery sgoraniia statsionarnykh gazoturbinnykh ustanovok. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 166 p. (MLRA 10:6)
(Gas turbines)

KUZNETSOV, L.A.

KUZNETSOV, L.A., kand.tekhn. nauk.

Selecting a starting motor for single shaft gas turbines.
Energomashinostroenie 3 no.12:37-39 D '57. (MIRA 11:1)
(Gas turbines)

S/112/59/000/013/021/067
A002/A001

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1959, No. 13, p. 32, # 26377

AUTHORS: Bychenkov, S. A., Kuznetsov, L. A., Dorfman, L. A., Shkutov, K. G.

TITLE: The Experimental Gas Turbine Plant of NZL

PERIODICAL: Tr. Nevsk. mashinostroit. z-da, 1957 (1958), No. 1, pp. 211-226

TEXT: An experimental gas turbine power plant was built at NZL in 1945-1948. At this plant a single-shaft ГТ-550 (GT-550) unit was installed working on an open cycle with regeneration (550°C gas temperature, 3.5 atm pressure). In 1955, the unit was converted to a ГТ-700 (GT-700) two-shaft installation (700°C gas temperature). The plant was in operation for 2,500 hours with 130 starts. The GT-550 with a capacity of 840-1,000 kw has 5 reaction stages with a 50% reaction. The adjustment of the compressor was performed during the tests. The stage characteristic on which the calculation of the compressor of the industrial ГТ-600-1.5 (GT-600-1.5) was based, was plotted on the basis of these α_1 = const, β_2 = const, u/c_0 = 0.56-0.63. The axial compressor has 16 stages

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The Experimental Gas Turbine Plant of NZL

S/112/59/000/013/021/067
A002/A001

investigations. The nonuniform distribution of temperatures over the turbine casing and great temperature stresses in the rotor bore necessitate a preheating of the installation for 60 - 80 minutes. Characteristics of the turbine unit at different operating conditions are given. Changes of the outside air temperature from +20°C to -20°C do not affect the specific fuel consumption, but the power rises by 1.5 times. The two-shaft GT-700 unit was designed on the basis of the GT-550 by adding a superimposed, single stage turbine with a 700°C inlet temperature and a high-pressure compressor.

V. S. P.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SOV/123-59-16-66692

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16, p 395 (USSR)

AUTHORS: Kuznetsov, L.A., Lamm, Yu.A., Narezhnyy, E.G.

TITLE: Combustion Chambers of Gas Turbine Installations

PERIODICAL: Tr. Nevsk. Mashinostroit. z-da, 1957 (1958), vyp.1, 227 - 244

ABSTRACT: At the Nevskiy Mashine Plant imeni Lenin (NZL) works were carried out for the investigation and designing of combustion chambers (KS) which could be used for gas turbine installations operating on heavy, liquid and gaseous fuel. The extensive work which was carried out to investigate the KS with a two-stage whirling device of primary air, with an aerodynamic distribution of the air stream, permitted to draw conclusions on the prospects of such a design of the KS and its application for the combustion of both liquid and low-calorie gaseous fuels. Such KS are made by the NZL for PG-50,000 and GT-600-6 installations. The Plant is also engaged in the designing of KS for the combustion of high-calorie gases. The work is carried out along two basic directions: 1. Using the standard design of a combustion chamber for liquid fuel by way of installing in it special gas burners. 2. Designing and testing of direct-

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Combustion Chambers of Gas Turbine Installations SOV/123-59-16-66692

flow combustion chambers with a telescopic fire tube and nozzle mixer. A whirling device with hollow blades is installed as a frontal installation (burner). The fuel (gas) is forced into the hollow of the blades and is admitted to the combustion space through fine orifices in the walls of the blade and in the exit rim.

Card 2/2

KuzNeTsov L.A.

AUTHOR: Ivlev, D.D. SOV/24-58-4-33/39

TITLE: Conference on Sustained Static Strength of Turbine Components Working at High Temperatures (Soveshchaniye po dlitel'noy staticheskoy prochnosti detaley turbomashin, rabotayushchikh pri vysokoy temperature)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 149 - 150 (USSR)

ABSTRACT: The Commission on the Strength of Gas Turbines from the Institut mekhaniki AN SSSR (Institute of Mechanics of the Ac.Sc.USSR) (Chairman - Yu.N. Rabotnov) and the Strength Section of the Leningrad Technical Committee on Turbine Construction (Chairman - V.K. Naumov) held a conference during December 20-22, 1957 on the sustained static strength of turbine components working at high temperature. The conference was opened by an introductory speech by the chairman of the Leningrad Technical Committee on Turbine Construction, S.A. Kantor.

The paper by I.A. Oding (Institute of Metallurgy, Ac.Sc. USSR) "Structural Theory of Creep" contained an account of the author's theory.

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V.S. Ivanova and L.K. Gordiyenko (Institut metallurgii AN SSSR - Institute of Metallurgy of the Ac.Sc.USSR) in the paper "Experimental Investigation of Some Aspects of the Theory of Structural Creep" described results corroborating aspects of Oding's theory.

L.A. Kuznetsov (Nevskiy metallicheskiy zavod im. Lenina - Nevskiy Metal Factory im. Lenin) in his paper "Problems in the Field of Static Strength of Turbine Components, Working at High Temperature" dwelt on data obtained in Leningrad industrial undertakings indicating the need for further improvement in design and constructional procedure.

The basic problem, in the author's opinion, is not so much the investigation of the stresses in individual components as the investigation of the limiting states of actual constructions. The author also noted the need for experimental investigation of model rotors, disks and frameworks of turbines and suggested setting before the Government the question of organising such an assembly in one of the factories with complete centralisation and co-ordination of work in this direction. The author criticised the inadmissible unplanned work taking place at the present time in extensometry, when each undertaking must itself solve problems relating to gauge, cements for them, methods of testing and appropriate apparatus.

I.A. Birger (TsIAM) presented a paper on "Standards of Strength of Components at High Temperatures"

A.P. Direktan (TsNIITMASh) gave a paper on "Experimental Investigation of the Bearing Capacity of Disks"

M.A. Koren' (Leningradskiy metallicheskiy zavod im. Stalina - Leningrad Metal Factory imeni Stalin) in the paper "Apparatus for Testing Sustained Strength of Some Turbine Stator Components" dealt with items of equipment constructed at his factory for investigating the stress state in a number of components: diaphragms, pin connections, etc.

V.S. Namestnikov (Moskovskiy gosudarstvennyy universitet - Moscow State University) gave a paper on "Creep of Heat-resistant Alloys at High Temperature". The author described experimental investigations on the behaviour of the steels EI-257 and EI-405 under conditions of complex stress and high steady temperature.

Card3/7

BYCHENKOV, S.A., inzh.; KUZNETSOV, L.A., kand.tekhn.nauk

Considerations in the selection of stationary gas-turbine units. Energomashinostroenie 4 no.3:22-23 Mr '58. (MIRA 11:5)
(Gas turbines)

KUZNETSOV, L.A., kand.tekhn.nauk; RAYER, G.A., inzh.

Start voltages in seamless forged rotors of gas turbines.
Energomashinostroenie 4 no.12:1-3 D '58. (MIRA 11:12)
(Gas turbines)

KUZNETSOV, L.A., kand.tekhn.nauk; KRINSKIY, A.A., inzh.;
BOGORADOVSKIY, G.O., inzh. BURDIN, A.A., inzh.

GT-700-5 gas turbine system. Energomashinostroenie 7 no.5:1-6
My '61. (MIRA 14:8)
(Gas turbines)

26530
S/114/61/000/009/001/002
E194/E455

26.2124

AUTHORS: Kuznetsov, L.A., Candidate of Technical Sciences
Kuznetsov, A.L., Engineer

TITLE: The influence of cooling on gas turbine characteristics

PERIODICAL: Energomashinostroyeniye, 1961, No.9, pp.5-8

TEXT: Gas turbine performance is improved by raising the inlet gas temperature which, in modern gas turbines, is 650 to 825°C. To achieve these temperatures the blading is made of expensive scarce material or cooling is used. Cooling complicates construction and gives rise to additional losses but reduces the demand for expensive scarce material or permits of higher gas temperature. Significant temperature increase can only be secured by cooling all the parts of the flow path including the blading. Cooling gives rise to additional losses because: the gas temperature is reduced and so it can do less work; the cooling agent (air) must be compressed; regenerative air heating is reduced because the gas is cooled more in the turbine. Other minor causes are enumerated. The balance of advantage is assessed by comparing cooled and uncooled turbines. For

Card 1/4

The influence of cooling on gas ...

purposes of analysis, it is assumed that the metal is cooled to a more or less uniform temperature throughout the flow path and that this temperature is lower than the gas temperature. Theoretical expressions are then derived from which the exhaust gas temperatures in cooled and uncooled turbines can be calculated and these and other expressions are used to calculate the various power losses due to cooling enumerated above. For concreteness, a numerical analysis is made of cooling losses in gas turbines in the 3 to 12 MW range with the following methods of cooling: 1) liquid screen cooling of rotor discs, as described by G.Fusner (Ref.6: Mechanical Engineering, 1950, N 4); 2) air cooling of rotor as by blowing air through blade roots; 3) cooling of rotor and blades by circulating a cooling liquid. The blade speed at the root diameter is taken to be 180 m/sec and the stage heat drop is 17.5 kcal/kg. Other design details are given. The cooled metal temperature is taken as 500°C to permit the use of pearlitic steel. The maximum cooling air temperature is 400°C. The calculations admittedly underestimate the cooling losses. Fig.2 shows graphs of turbine characteristics as functions of gas temperature, namely the efficiency $\eta_{\text{в}}$, the relative useful power delivered ψ and the specific gas consumption $G_{уд}$.

Card 2/4

The influence of cooling on gas ...

The dotted lines correspond to no cooling; the numbers against the other curves correspond to the cooling methods enumerated above. Further data are given for power loss and for losses specific to air cooling. The following conclusions are then drawn; all kinds of cooling appreciably reduce the efficiency but losses with screen cooling are much less than with air. If the savings in turbine manufacturing costs are set off against extra fuel and air consumption, it is found that air cooling is unprofitable, although it may still be needed in some cases to improve starting and operating conditions. Liquid cooling, even of runner blades alone, gives still greater losses which are not covered by the savings in construction costs. Screen cooling combined with partial air cooling is thus the most promising for gas turbines of medium output. Air should mainly be used to prevent leakage of gas through the labyrinth glands and only incidentally for cooling. There are 4 figures and 6 references: 5 Soviet and 1 non-Soviet. The reference to an English language publication reads as follows: G.Fusner, Mechanical Engineering, 1950, N 4.

Card 3/4

S/114/62/000/007/002/003
E194/E455

AUTHORS: Kuznetsov, L.A., Candidate of Technical Sciences; Mironov, B.P., Candidate of Technical Sciences

TITLE: Internal thermal insulation of the casing of gas turbine type ГТ-700-5 (GT-700-5)

PERIODICAL: Energomashinostroyeniye, no.7, 1962, 23-26

TEXT: Gas turbines operate with an inlet gas temperature of 700°C or more and so special precautions are required in the design of casing. The earlier solution was to use austenitic steels but these have various disadvantages. Air cooling is quite effective but is difficult to distribute uniformly and there is some loss of efficiency. Internal thermal insulation give good results and casing temperatures can thereby be much reduced. It has the disadvantage of requiring a larger casing and, moreover, local cooling may still be required at places where there is direct thermal contact between the frame and hot parts. The properties required of internal thermal insulation are

Card 1/3

discussed; of available materials the most suitable are kaolin wadding and fibrous alumina. Since 1955, the Nevskiy mashinostroitel'nyy zavod (Nevsk Engineering Works) has used vermiculite concrete as thermal insulation of full-scale and model gas turbines. The composition of this material is described. Tests showed that it needed air gaps to allow for thermal expansion. Three prototypes of turbine type GT-700-5 were internally insulated with vermiculite concrete, micro-slag wadding grade M-100, and an experimental batch of kaolin fibre. The construction of the internal insulation, particularly that of vermiculite concrete, is described in some detail. Graphs of steady temperature against gas inlet temperature for different parts of the turbine show in particular that the centre part of the casing could be kept to about 400°C with inlet gas temperature of 700°C. Graphs also show changes of temperature with time for various parts of the turbine; the casing heated up steadily for a period of 5 to 6 hours. After 230 hours operation and 60 starts the kaolin and slag wadding insulation of the first machine showed no obvious shrinkage. The appearance of the kaolin wadding was

unaltered whilst the slag wadding had become more brittle and broke up more easily. The results so far available do not permit of a firm choice between kaolin wadding or vermiculite concrete. Present indications are that high-temperature wadding is preferable to the concrete and insulation of this kind protected with heat-resisting fabric does not require air gaps, does not shrink and is of very uniform properties over its entire area. There are 6 figures.

Card 3/3

DUBROVSKIY, O.V., kand. tekhn. nauk; KUZNETSOV, L.A., kand. tekhn. nauk; NAREZHNYY, E.G., kand. tekhn. nauk

Experimental study of a model of a three-register combustion chamber of a gas turbine system operating on liquid fuel. Teploenergetika 10 no.7:31-36 Jl '63. (MIRA 16:7)

1. Nevskiy mashinostroitel'nyy zavod i Leningradskiy korablestroitel'nyy institut.

(Gas turbines)

KUZNETSOV, L.A., doktor tekhn. nauk; ANDREYEV, V.I.;
BOGORADOVSKIY, G.I.; BURDIN, A.A.; KRINSKIY, A.A.;
FAYNSHTEYN, A.A.; SHABASHOV, S.Z.

[The GT-700-5 gas turbine system] Gazoturbinnaia ustanovka GT-700-5. Moskva, Mashinostroenie, 1964. 190 p.
(MIRA 17:5)

ANDREYEV, V.I., inzh.; KUZNETSOV, L.A., doktor tekhn. nauk

Manufacture of gas turbines at the Nevskii Machinery Plant.
Energomashinostroenie 10 no.7:1-4 Jl '64. (MIRA 17:9)

KUZNETSOV, L.A., doktor tekhn. nauk; BOGORADOVSKIY, G.I., inzh.; KRINSKIY, A.A., inzh.; KUZNETSOV, A.L., kand. tekhn. nauk; MAL'TSUROV, I.I., inzh.

Principal results of the tests of an experimental industrial GT-750-6 gas turbine system. Energomashinostroenie 11 no.5: 1-4 My '65. (MIRA 18:6)

KUZNETSOV, L.A., doktor tekhn.nauk; SUDAREV, A.V., inzh.

Study of blade-type mixers of combustion chambers with three whirlers. Energomashinostroenie 11 no.10:17-19 O '65. (MIRA 18:11)

L 29252-66 EWP(j)/EWT(m) RM/WW/JW

ACC NR: AP6019314 SOURCE CODE: UR/0286/65/000/012/0022/0022

INVENTOR: Levin, A. M.; Glazov, A. N.; Vershinin, V. I.; Danilov, P. M.; Plekhanov, P. S.; Pashchenko, V. Ye.; Lachinov, S. S.; Kuznetsov, L. D.; Rabina, P. D.; Levitskaya, T. T.; Tatarov, F. S.; Lipinskaya, V. P.; Chernoyeva, Z. M.; Alekseyeva, Z. S.

ORG: none

TITLE: Steel for manufacturing ammonia synthesis catalyzer. Class 18, No. 171877

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 22

TOPIC TAGS: steel, ammonia, inorganic synthesis, catalysis

ABSTRACT: A steel for manufacturing ammonia synthesis catalyzers is distinguished by an increased catalyzer activity and has the following chemical composition: 0.10% C, 1.0-2.0% Al, 0.05% Mn, 0.008% P, 0.008% S, 0.05% Cr, 0.10% Cu, 0.05% Ni, 0.40% Si, balance--iron. [JPRS]

SUB CODE: 11, 07 / SUBM DATE: none

Card 1/1 UDC: 669.14/15

KUZNETSOV, L.D.; LACHINOV, S.S.

Effect of promoters on the specific activity of iron catalysts ammonia synthesis. Khim. nauka i prom. 2 no.2:269-270 '57. (MIRA 10:6)

1. Gosudarstvennyy institut azotnoy promyshlennosti.
(Catalysts) (Ammonia)

S/081/60/000/021/009/018
A005/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 21, p. 50, # 83987

AUTHORS: Lachinov, S. S., Kuznetsov, L. D., Kurkovskiy, V. A., Shishkova, V.N., Dmitriyenko, L. M., Lyudkovskaya, B. G.

TITLE: The Activity and Structure of Iron Catalysts of the Ammonia Synthesis With Three and Four Activators

PERIODICAL: Probl. kinetiki i kataliza, 1960, Vol. 10, pp. 199-203

TEXT: The activity of an iron catalyst activated by K_2O - CaO - Al_2O_3 is higher with respect to the NH_3 synthesis than the activity of an iron catalyst activated by K_2O - Al_2O_3 and K_2O - CaO - Al_2O_3 - SiO_2 (mainly on account of the higher specific activity). If a nitrogen-hydrogen mixture is applied with poisons containing oxygen, the activity is higher for an iron catalyst with four activators. An iron catalyst activated by K_2O - CaO - Al_2O_3 - SiO_2 is distinguished in comparison with an iron catalyst activated by K_2O - CaO - Al_2O_3 by a greater surface, higher dispersion degree, and finer porosity. In iron catalysts with an intricate activator compositon, the alkali and alkali earth activators increase

Card 1/2

S/081/60/000/021/009/018
A005/A001

The Activity and Structure of Iron Catalysts of the Ammonia Synthesis With Three and Four Activators

the specific activity of the iron catalyst but lead to a decrease in surface while the amphoteric and weak acid refractory oxides decrease the specific activity but increase the surface.

From the summary of the authors

Translator's note: This is the full translation of the original Russian abstract.

INST: GOSUDARSTVENNYY INST. AZOTNOY PROMYSHLENNOSTI

Card 2/2

DMITRENKO, L.M.; KUZNETSOV, L.D.; KANYSHINA, Ye.A.; KONTOROVICH, G.I.

Selection of raw materials for the production of catalysts for ammonia synthesis. Khim. prom. no.10:750-752 O '63.
(MIRA 17:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni I.P. Bardina.

LACHINOV, S.S.; RUBINSHTEYN, A.M.; AKIMOV, V.M.; KLYACHKO-GURVICH, A.L.; KONYUKHOVA, I.N.; KUZNETSOV, L.D.; LEVITSKAYA, T.T.; PRIBYTKOVA, N.A.; SLINKIN, A.A.; CHESNOKOVA, R.V.

Complex investigation of iron catalysts for ammonia synthesis. Kin. i kat. 5 no.3:478-489 My-Je '64.

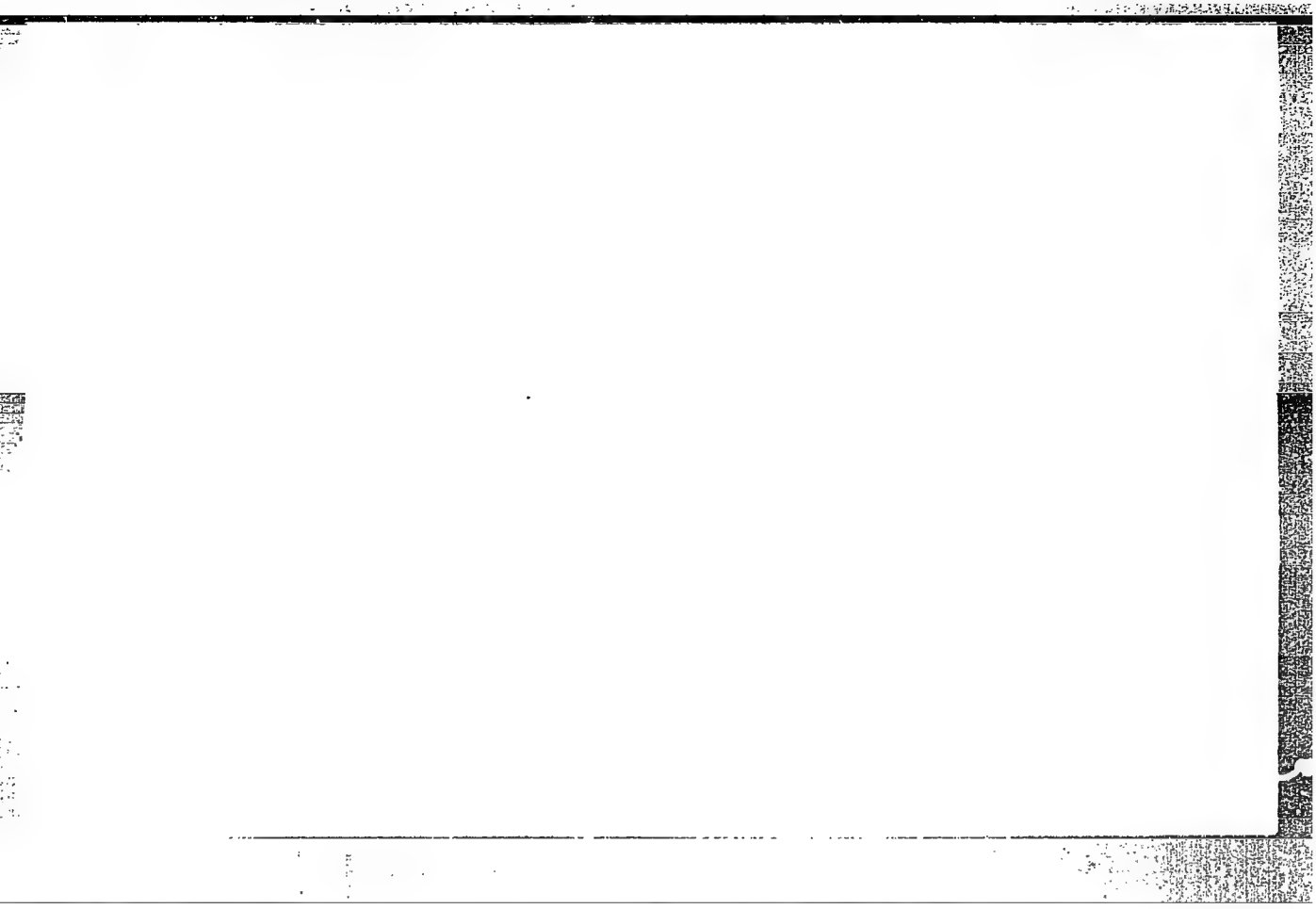
(MIRA 17:11)

1. Institut organicheskoy khimii AN SSSR i Gosudarstvennyy institut azotnoy promyshlennosti.

KRYLOVA, A.V.; KUZNETSOV, L.D.; KONYUKHOVA, I.N.

Effect of alkaline accelerators on the electron work function and the activity of ammonia catalysts. Kin. i kat. 5 no.5: 948-950 S-O '64. (MIRA 17:12)

1. Institut khimicheskoy fiziki AN SSSR i Gosudarstvennyy institut azotnoy promyshlennosti.



USSR/Electricity - Dielectrics G-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6960

Author : Voroshchagin, L.F., Kuznetsov, L.F., Alayova, T.I.
Title : Dielectric Properties of Castor Oil at High Pressure

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 4, 661-666

Abstract : A study was made of the dependence of the dielectric constant (ε) and the tangent of the dielectric loss angle ($\tan\delta$) of castor oil on the pressure (p). The author has described in detail an experimental setup, which makes possible measurement of ε and $\tan\delta$ of liquid dielectrics all the way to p = 9,000 atmos. It is shown that ε of castor oil, at normal pressure, is 4.35, and increases with increasing p until it reaches a maximum (ε = 5.25) at 3600 atmos. Further increase in pressure reduces ε (ε = 4 at 9,000 atmos). The increase in pressure at $1 \leq p \leq 3600$ atmos is attributed to the increase in the density of the castor oil with increasing pressure. The reduction of ε upon further increase in p is due to the increase in the relaxation time. The curve of $\tan\delta$ of castor oil vs. p also exhibits a maximum.

Card : 1/1

KUZNETSOV, L.F., inzh.; TIMAKOV, V.D., inzh.

Features of using radioactive isotopes in service systems. Elek. i tepl. tiaga 6 no.11:40-41 N '62. (MIRA 16:1)
(Radioactive isotopes--Industrial applications) (Railroads)

KAZANSKIY, Nikolay Vasil'yevich; KUZNETSOV, Leonid Filippovich; KUZ'MIN, P.V., red.

[Masonry and furnace work] Kamennye i pechnye raboty. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1963. 38 p. (MIRA 17:6)

SARYLOVA, K.P.; KUZNETSOV, L.I.; YEROFEYEVA, L.I.

Treatment of Botkin's disease in children. Pediatriia 39 no.6:43-46 N-D '56. (MLRA 10:2)

1. Iz fakul'tetskoy detskoy kliniki (zav. - prof. P.A.Ponomareva) na base II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni I.V.Stalina i 4-y gorodskoy bol'nitsy Zhdanovskogo rayona (glavnyy vrach Yu.A.Maksimova)

(HEPATITIS, INFECTIOUS, in infant and child, ther. (Rus))

USSR/Chemistry - Reduction, Electro- Nov 49
Polarography

"Polarographic Determination of Picric Acid,"
M. B. Neyman, L. I. Kuznetsov, I. B. Rabinovich,
A. V. Ryabov, Inst of Chem, Gor'kiy State U, 4 pp

"Zavod Lab" No 11 - p. 1290-94

Describes experiments on electroreduction of picric acid on mercury-drop cathode. Determines most favorable conditions for its quantitative determination by polarographic methods. Includes four graphs.

153T11

KUZNETSOV, L. I., Cand of Tech Sci -- (diss) "Studying the Effect of Promotors on the Activity of Ammonia-Synthesis Catalysts and Developing a More Active Industrial Catalyst," Moscow, 1959, 12 pp (Moscow Chemical and Technological Institute im D. I. Mendeleyev) (KL, 8-60, 116)

16(1)

AUTHOR: Kuznetsov, L.I. SOV/43-58-19-12/16

TITLE: Movement of the Gyroscope in a Resisting Medium Taking into Account the Friction of the Suspension Clip (O dvizhenii giroskopa v soprotivlyayushcheysya srede s uchetom treniya v podvese)

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1958, Nr 19(4), pp 151-155 (USSR)

ABSTRACT: The author considers a gyroscope with Cardanic suspension, with the weight P and moments of inertia A and C. The free movement of the gyroscope is described by

$$(1)\quad \begin{aligned} A\ddot{\theta}_1 + Cr\theta_2 + Pl\theta_1 &= 0 \\ A\ddot{\theta}_2 - Cr\theta_1 + Pl\theta_2 &= 0 \end{aligned} \qquad r = r_0$$

Now the gyroscope is exposed to the resistance of the medium and of the friction of the suspension clip. Disturbing terms occur, and a non-linear system of three equations is obtained, since $r = r(t)$. The system is solved by means of averaging according to the method of Bulgakov [Ref 1].

Card 1/2

Movement of the Gyroscope in a Resisting Medium Taking into Account the Friction of the Suspension Clip SOV/43-58-19-12/16

It is stated that for $l<0$ the precession oscillations increase, while the nutations decay. The gyroscope stable in the vacuum becomes unstable by the medium resistance and the friction. For $l=0$ there is no precession, while the nutation decays on a finite interval. For $l>0$ the precession as well as the nutation decays.
There are 1 figure, and 3 Soviet references.

SUBMITTED: March 29, 1957

Card 2/2

16(1)

AUTHOR: Kuznetsov, L.I. SOV/43-59-1-17/17

TITLE: On the Calculation of Amplitudes of Forced Oscillations of a System (O vychislenii amplitud vynuzhdennykh kolebaniy odnoy sistemy)

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1959, Nr 1(1), pp 150-158 (USSR)

ABSTRACT: The author considers small oscillations of an instrument for the investigation of vibrations which consists of a symmetrically suspended disk and of an optical observation element. The oscillations arise by small discrepancies in the balancing of the instrument and by small deviations of the suspensions, and they distort the image of the observed vibrations. For the consideration of this distortion one has to calculate the amplitudes of the small oscillations. The author proposes a calculation method which is not completely precise, however, essentially simpler than the usual methods for which linear systems with seven unknowns have to be solved according to the Cramer rule.

SUBMITTED: January 2, 1957

Card 1/1

USCOMM-DC-60,929

16(1),24(6)

AUTHOR: Kuznetsov,L.I.

SOV/43-59-10/17

TITLE: The Estimation of the Solutions of the Motion Equations of Gyroscope Systems (Otsenka resheniy uravneniy dvizheniya giroskopicheskikh sistem)

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1959, Nr 7(2), pp 105-111 (USSR)

ABSTRACT: The author considers a system with holonomic stationary bindings and m gyroscopes. The motion equations have the form

$$(1)\quad \sum_{k=1}^{n}(a_{jk}\ddot{q}_k + Hg_{jk}\dot{q}_k) = f_j(t) + \sum_{k=1}^{n}\left[c_{jk}(t)q_k + b_{jk}(t)\dot{q}_k\right],$$

where the coefficients are certain functions of the parameters. Beside of (1) the simplified system

$$(2)\quad H\sum_{k=1}^{n} g_{jk}\dot{u}_k = f_j(t) + \sum_{k=1}^{n}\left[c_{jk}(t)u_k + b_{jk}(t)\dot{u}_k\right]$$

with

$$(3)\quad u_j(0) = q_{j0}$$

is considered. Under the assumption that (2) has a unique solution satisfying (3), the difference $q_j - u_j$ is estimated.

Card 1/2

The Estimation of the Solutions of the Motion Equations of Gyroscope Systems SOV/43-59-10/17

The estimation has the form

$$|q_j - u_j| < \frac{A+Bt}{H} e^{(\frac{M}{H} + H)nt},$$

where the positive constant M does not depend on H. The given values of the constants can be improved essentially for concrete problems. A special case was already investigated by D.R.Merkin. There are 3 Soviet references.

SUBMITTED: December 2, 1957

Card 2/2

KUZNETSOV, L. I.

PHASE I BOOK EXPLOITATION SOV/4630

Leningrad. Universitet

Mekhanika (Mechanics) [Leningrad] 1960. 254 p. (Series: Its: Uchenyye zapiski, no. 280. Seriya matematicheskikh nauk, vyp. 35) Errata slip inserted. 1,725 copies printed.

Sponsoring Agency: Leningradskiy ordena Lenina gosudarstvennyy universitet imeni A. A. Zhdanova.

Resp. Ed.: N. N. Polyakhov, Professor; Ed.: T. I. Kulagina; Tech. Ed.: Ye. G. Zhukova.

PURPOSE: This collection of articles is intended for scientists, engineers at NII's (scientific research institutes) and design offices and also for students of advanced courses in related fields.

COVERAGE: The collection consists of original investigations in the field of modern mechanics including general mechanics, theory of elasticity, and hydroaerodynamics. No personalities are mentioned. References accompany all articles except one.

Card 1/5

TABLE OF CONTENTS:

GENERAL MECHANICS

41607
S/043/62/019/004/002/004
D237/D308

24.4100

AUTHOR: Kuznetsov, L.I.

TITLE: Use of the Bubnov-Galerkin method in the theory of non-linear oscillations

PERIODICAL: Universitet. Leningrad. Vestnik. Seriya matematiki, mekhaniki i astronomii, v. 19, no. 4, 1962, 79-85

TEXT: Mechanical systems are described by

$$\ddot{x} = \psi(x, \dot{x}, t) \qquad (1)$$

where ψ is continuous in all arguments and periodic in t with the period of 2π, are considered. Only 2π-periodic solutions of (1) are investigated. An operator equation

$$x - P_n T x = 0 \qquad (1.8)$$

equivalent to (1) is formed and it is shown that if, beginning from some n (1.8) has a solution $x_0^{(n)}$ in D (D - finite and bounded), then

$$x - Tx = 0 \qquad (1.7)$$

Card 1/2

Use of the Bubnov-Galerkin method ...

where $T \in D$ has a solution x_0. Also, the sequence of solutions $\{x_0^{(n)}\}$ contains a subsequence convergent to x_0. Further the author derives and proves Theorem 2: Let the function $\Psi(x,\dot{x},t)$ possess bounded 2nd derivatives w.r. to x and $\dot{x}$. Then, if (1) has a 2π-periodic solution x_0 for which the variational equation

$$\ddot{\xi} = \frac{\partial \Psi(x_0,\dot{x}_0,t)}{\partial x}\xi + \frac{\partial \Psi(x_0,\dot{x}_0,t)}{\partial \dot{x}}\dot{\xi}. \qquad (1.18)$$

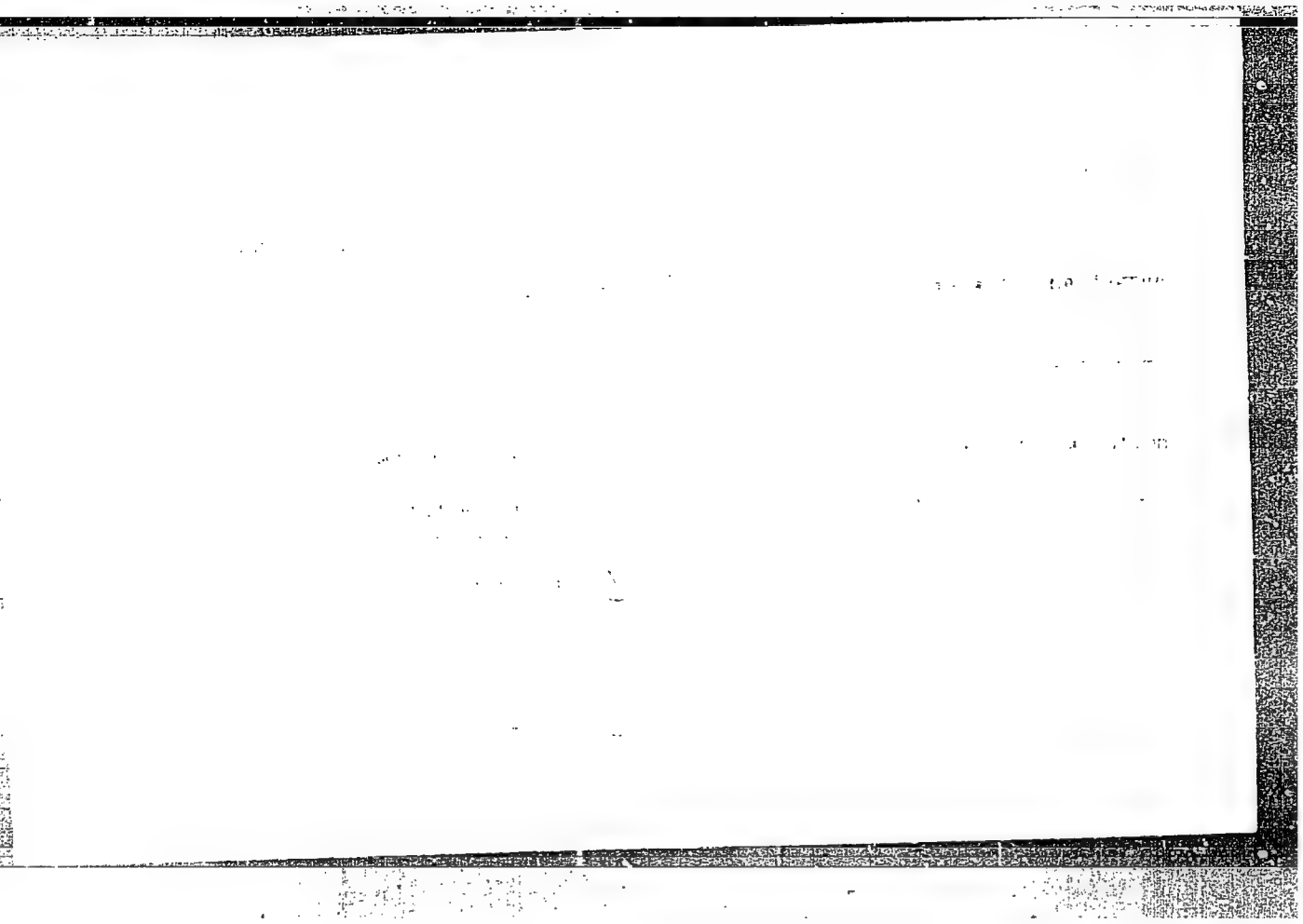
has no 2π-periodic solution then, starting from some n, the solution of (3) exists and the sequence of approximate solutions converges to the exact solution. There are 3 figures.

SUBMITTED: March 23, 1962

Card 2/2

KUZNETSOV, L.I.

Application of the Bubnov-Galerkin method in the nonlinear oscillation theory. Vest. LGU 17 no.19:79-85 '62. (MIRA 15:10)
(Oscillations)



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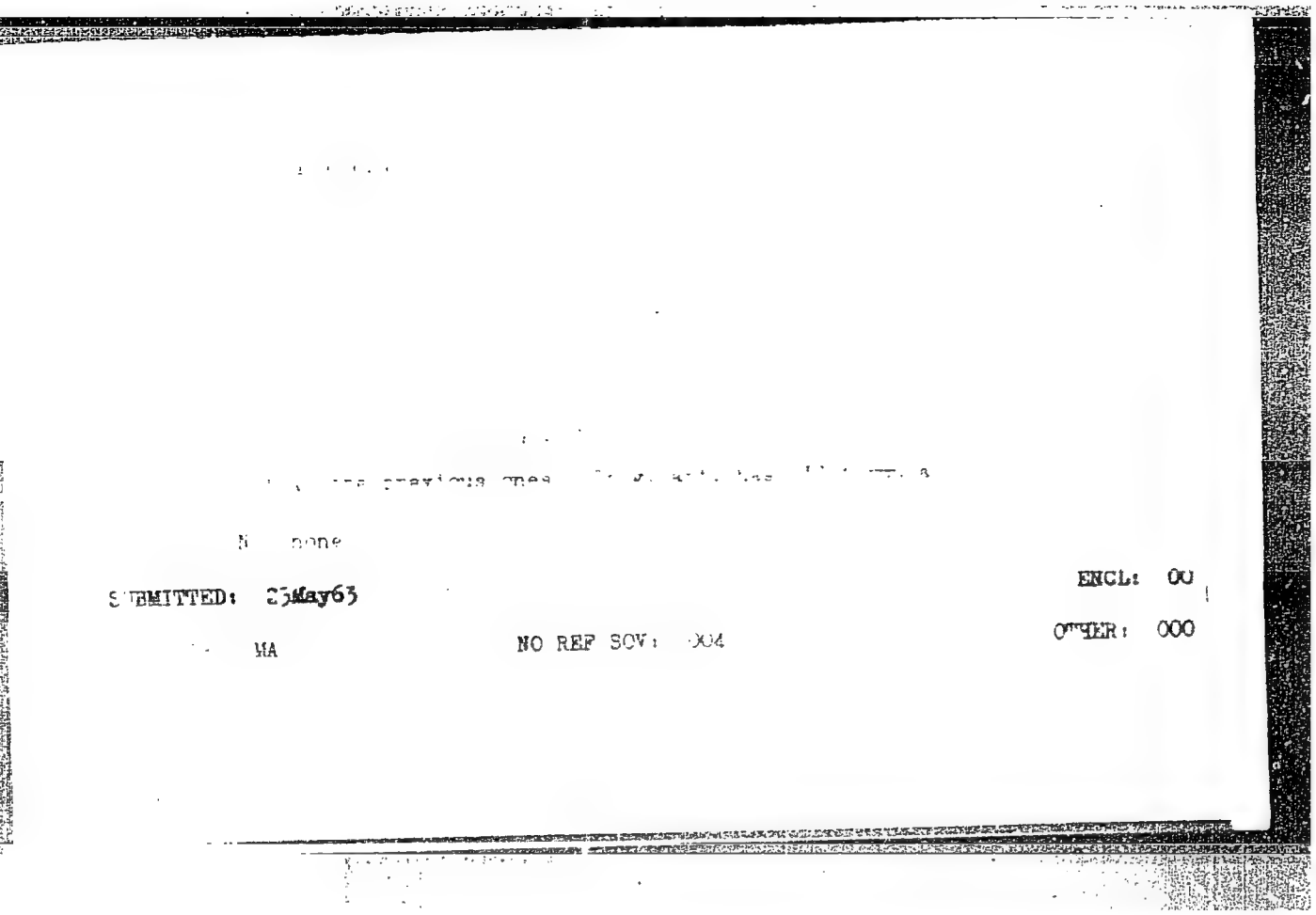

N none

SUBMITTED: 23May63 ENCL: 00

MA NO REF SOV: 004 OTHER: 000

L 32937-66 EWP(k)/EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) AT/WW/JD/JG/AB/...

ACC NR: AP6019932 SOURCE CODE: UR/0122/66/000/006/0063/0065

AUTHOR: Dergunova, V. S. (Candidate of technical sciences); Komissarov, G. K. (Engineer); Yermakova, M. P. (Engineer); Kuznetsov, L. I. (Engineer); Gol'denberg, A. A. (Candidate of technical sciences)

ORG: none

TITLE: Metal ceramic alloy for work at elevated temperatures

SOURCE: Vestnik mashinostroyeniya, no. 6, 1966, 63-65

TOPIC TAGS: metal ceramic material, sintered alloy, high temperature cermet material, titanium carbide containing alloy, boron carbide containing alloy, silicon carbide containing alloy, alloy oxidation, alloy thermal fatigue

ABSTRACT: Several ternary alloys containing 40.8—60% TiC, 20—39.2% B_4C, and 20% SiC were compacted at 2100—2150C under a pressure of 230 kg/cm^2, diffusion annealed at 1900C for 12 hr in an argon atmosphere, cooled at the rate of 100C/hr, and tested for oxidation resistance and thermal fatigue. Oxidation-resistance tests made on alloys oxidized in air at 900C for 20 min, 1.5 hr, 3.5 hr, 10 hr, and 15 hr showed that the most intensive oxidation, accompanied with oxide film formation, occurs in the initial period of the exposure and practically ceases after 5-hr exposure. All tested alloys can be regarded as oxidation resistant since their weight gain in 15-hr

Card 1/2 UDC: 621.762

L 32937-66

ACC NR: AP6019932

tests was only 4—6 mg/cm^2, which is 3.5 times lower than the weight gain of TiC under identical conditions of oxidation. The thermal fatigue resistance was evaluated from the number of quenches from 1200 and 2000C sustained by alloy specimens before failure. In quenching from 1200C, the investigated alloys sustained 40 thermal cycles without failure, which was double the number of thermal cycles sustained by TiC and 20 times as many as an alloy containing 85% SiC + 15% B_4C sustained. Hence, titanium-, boron- and silicon carbide-based alloys can be recommended as material suitable for making parts operating at high temperature under conditions of frequent temperature changes. Orig. art. has: 4 figures and 2 tables. [ND]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 006/ ATD PRESS: 5027

Card 2/2

112-1-196

Translated from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 1, p.29 (USSR)

AUTHORS: Kuznetsov, L.I., Mikhaylovich, A.M

TITLE: Investigation of the Spreader Type of Burning Anthracite with Liquid Slag Removal on the Stand (Issledovaniye sloyevogo szhiganiya antratsita s zhidkim shlakoudaleniyem na stende)

PERIODICAL: Sbornik: Issledovaniye kotel'no-topochnykh protsessov, Moscow, Mashgiz, 1955, pp.62-70.

ABSTRACT: Bibliographic entry.

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KUZNETSOV, L. I., BLANTER, M. Ye., LOZINSKIY, M. G., and SINODOVA, Ye. F.

"The Effect of Alloying Elements on the Hardness of Nickel Alloys at High Temperatures" by M. Ye Blanter, L. I. Kuznetsov, M. G. Lozinskiy, and Ye. P. Sinodova, Institute of Machine Science, Academy of Sciences USSR, and Moscow Aviation Institute, Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, No 12, Dec 56, pp 88-95

Since nickel-based alloys are widely used in contemporary specialized machine building, especially in the production of gas turbines, the authors detail the results of their investigation of the effect of chromium, tungsten, molybdenum, titanium, cobalt, and aluminum on the temperature-hardness relationship of nickel alloys in temperatures ranging from room temperature to 1,100°.

The experimental methodology and specimens are described. The greatest hardness at high temperatures results when binary nickel alloys are alloyed: 19% Cr (20.9 atomic %), 12% Mo (7.7 atomic %), 11% W (3.8 atomic %), 4% Ti (4.85 atomic %), and 1% Al (2.15 atomic %). Molybdenum, chromium, titanium, and tungsten, in that order, have the greatest effect on increasing hardness in the range of temperatures investigated.

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Kuznetsov, L. I.

129-12-4/11

AUTHORS: Blanter, M. Ye. Doctor of Technical Sciences, Prof. and Kuznetsov, L. I., Engineer.

TITLE: Recrystallization processes in alloyed nickel alloys. (Rekristallizatsionnyye protsessy v legirovannykh splavakh nikelya).

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1957, No.12, pp. 31-36 (USSR)

ABSTRACT: Systematic data on the influence of the alloying elements on the recrystallization processes in binary nickel alloys are not available, except those published by Davis, M., Densem, C.E., Rendball, J.H. (Ref.1) for Ni-W alloys. Therefore, the authors of this paper studied the influence of Mo, Cr, Ti and Co on the process of softening, "recovery", and recrystallization in binary nickel base alloys. The composition of the alloys was selected in accordance with the diagrams of state of nickel and the respective element in the range of homogeneous solid solutions, see Table 1, p.32. The Ni-Mo, Ni-Cr and Ni-Co alloys were produced in a chromium-magnesite crucible, inside a high frequency furnace, and the Ni-Ti alloys were produced in a magnesite crucible. After casting into 3.5 kg ingot,

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the material was forged into rods of 9 x 9 mm cross section and annealed at 880 to 890°C for 30 minutes. Following that, the rods were cut into specimens 6 to 7 mm high and deformed at room temperature by means of a 50 ton press with reductions of 5, 10, 25 and 38%. The recrystallization processes were studied on the basis of metallographic analyses and by the hardness method. The grain size of the alloys was characterized by the specific area of division of the grains (S mm^2/mm^3) determined by means of the method of random secants proposed by Saltykov, S.A. (Ref.2). The results of investigations of the influence of preliminary plastic deformation for the alloy M8 are reproduced in the graph, Fig.1, which shows the influence of the heating temperature on the size of the specific surface of the grain boundaries for an Mo content of 8.17%. The graph, Fig.2, shows the influence of the heating temperature on the hardness of a preliminarily work hardened alloy M8, whilst the graph, Fig.3, gives the results of investigations of the softening and the changes in the specific surface of the grain boundaries.

Card 2/5 The influence of the heating temperature on the magnitude

of the specific surface of the grain boundaries was investigated on a series of Ni-Mo alloys, all subjected to an equal preliminary plastic deformation of 38% and the results are plotted in Fig.4, p.33; the graph, Fig.5, shows the influence of Mo on the recrystallization processes and on the softening. The results of investigations of the influence of about 5 at.% of Ti, Cr, Co and Mo on the recrystallization processes for a preliminary plastic deformation of 38% are graphed in Fig.6, p.34. Comparison of the results of investigations of the recrystallization with results relating to softening enabled clarification of the role of individual recrystallization processes and the influence of alloying elements on these processes. In M8 nickel-molybdenum alloys containing 8.17 wt.% Mo (5.19 at.%) the initial stage of softening is determined by the recovery process, the temperature range of which decreases continuously and regularly with increasing degrees of preliminary plastic deformation; softening, accompanied by recrystallization treatment, takes place within a temperature margin

Card 3/5 of 100°C and the softening is accompanied by selective

recrystallization within a temperature margin of 25 to 50°C. With increasing Mo content the structure of the alloy becomes continuously finer for an equal degree of plastic deformation; increase in the Mo content leads to a continuous increase of the temperature of the beginning of the recrystallization processes and also of the temperature of the beginning and end of the softening and these temperatures increase particularly sharply for Mo contents above 8 wt.%. Softening of preliminarily deformed nickel alloys is a consequence of the recovery processes, recrystallization treatment and selective recrystallization; depending on the character of the alloying, tne importance of each of these processes will differ as regards removing the work hardening. In non-alloyed nickel the softening coincides with recrystallization treatment; introduction of equal contents of Co, Cr, Ti and Mo (about 5 at.%) changes the character of this softening. Introduction of Co leads to a larger zone of recovery temperatures; the recovery phenomenon is also observed in the case of introduction of Mo. On introducing Co, Ti or Mo, the final softening takes

 place during selective recrystallization. In the case of

equal atomic concentrations (about 5%) of the alloying elements of the 4th period of the periodic system, the initial softening temperature increases on changing over from Co to Cr and Ti.
There are 6 figures, 1 table and 2 references, one of which is Slavic.

ASSOCIATION: All-Union Correspondence Institute of Mechanical Engineering (Vsesoyuznyy Zaochnyy Mashinostroitel'nyy Institut)

AVAILABLE: Library of Congress.

KUZNETSOV, L. I.: Master Tech Sci (diss) -- "The kinetics and mechanism of weakening of binary nickel alloys". Moscow, 1958. 9 pp (Min Higher Educ USSR, Moscow Order of Labor Red Banner Inst of Steel im I. V. Stalin), 120 copies (KL, No 7, 1959, 124)

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A004/A002

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 8, p. 112, # 29413

AUTHORS: Blanter, M. Ye., Kuznetsov, L. I.

TITLE: Softening, Recovery and Recrystallization of Nickel Alloys

PERIODICAL: Tr. Omskogo mashinostroit. in-ta, 1958, No. 2, pp. 91-109

TEXT: The authors investigated the effect of Cr, Mo, Ti, Co, and Al on the processes of softening, recovery and recrystallization of nickel-base alloys. Moreover, they determined the effects of temperatures in the range of from room temperature to 1,100°C and the degree of alloying on the changes in hardness of non-deformed alloys, on the softening of differently alloyed and differently deformed alloys and on the structural changes during the softening of alloys. Comparing the mechanical properties of nickel alloys possessing an optimum content of alloying elements it follows that the hardness of these alloys is in the most effective way increased by Mo, while Cr, Ti, W and Al have a lower effect. It is shown that an increase in alloying elements (for the same degree of cold hardening) causes an increase in the temperature range of softening. In

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Softening, Recovery and Recrystallization of Nickel Alloys

Ni-Mo-alloys with 12% Mo and a cold hardening of 38%, the softening temperature range amounts to 600-1,000°C, while for 8% Mo, 1% Mo and pure nickel the values are 500-675°C, 450-600° and 400-500° respectively. Investigating the structure of Ni-Mo-alloys for the whole softening temperature range it was found that the initial period of softening is not accompanied by structural modifications and that the softening observed in this temperature range is stipulated by the phenomenon of the recovery. Mo-alloying in proportion to the Mo-content promotes the refining of the plastically deformed nickel-alloys and also increases the initial temperature of softening, machining recrystallization and collective recrystallization. The alloys with an 8% Mo-content or more show a particularly abrupt increase in these characteristics. The recovery phenomenon is not observed in Cr- or Ti-alloyed alloys. The initial softening temperatures of a number of nickel-alloys with Co, Mo, Cr and Ti are in the range of 400°C for pure nickel to 600° for Ni-alloys with 4,27% Ti. There are 11 figures and 5 references.

L. Kh. Sh.

Translator's note: This is the full translation of the original Russian abstract.

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SOV/180-59-3-13/43

AUTHORS: Blanter, M.Ye. and Kuznetsov, L.I. (Moscow, Omsk)

TITLE: The Connection between Softening During Removal of Cold Work and Temperature Softening of Nickel Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 75-82 (USSR)

ABSTRACT: The two processes of softening appear, at first glance, to be unconnected processes. Alloys tested were binary alloys of nickel with molybdenum, chromium, tungsten, titanium, cobalt and aluminium. Chemical compositions are given in the table. The degree of softening was followed by measuring hardness at various stages. Samples were given 5, 10, 25 and 38% deformation and heated to various temperatures. The temperature of half-softening was measured, i.e. the temperature at which the hardness was the arithmetic mean of the cold worked and the unworked material. Fig 1 shows the effect of alloying content on the half-softened temperature. With 5% deformation, W, Mo and Cr have the greatest effect. At higher degrees of deformation Cr and W have the greatest effect. There already existed data on the hardness of undeformed alloys at various temperatures (Ref 3); from these it could be seen that the hardness test itself introduced cold work.

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The Connection between Softening During Removal of Cold Work and Temperature Softening of Nickel Alloys

At higher temperatures, recrystallisation also took place so a characteristic bend in the hardness-temperature curve was obtained (the critical temperature). Fig 2 shows the effect of Mo additions on the hardness - temperature curve. Fig 3 shows the influence of alloying elements on the critical temperature. 0.5% W or Mo and 2% Cr have a pronounced influence. Thus an increase in critical temperature and an increase in the half-softened temperature are both brought about by the same alloying additions. This is because the hardness test itself introduces cold work. Elements which have the strongest effect are those which form strong interatomic bonds and have the greatest values for heat of self-diffusion. The relation between the critical temperature and the temperature of half-softening is shown in Fig 4 for Ni - Mo alloys and in Fig 5 for Ni - Cr, Ni - Ti and Ni - Co alloys. There are 5 figures, 1 table and 24 references, 13 of which are English,